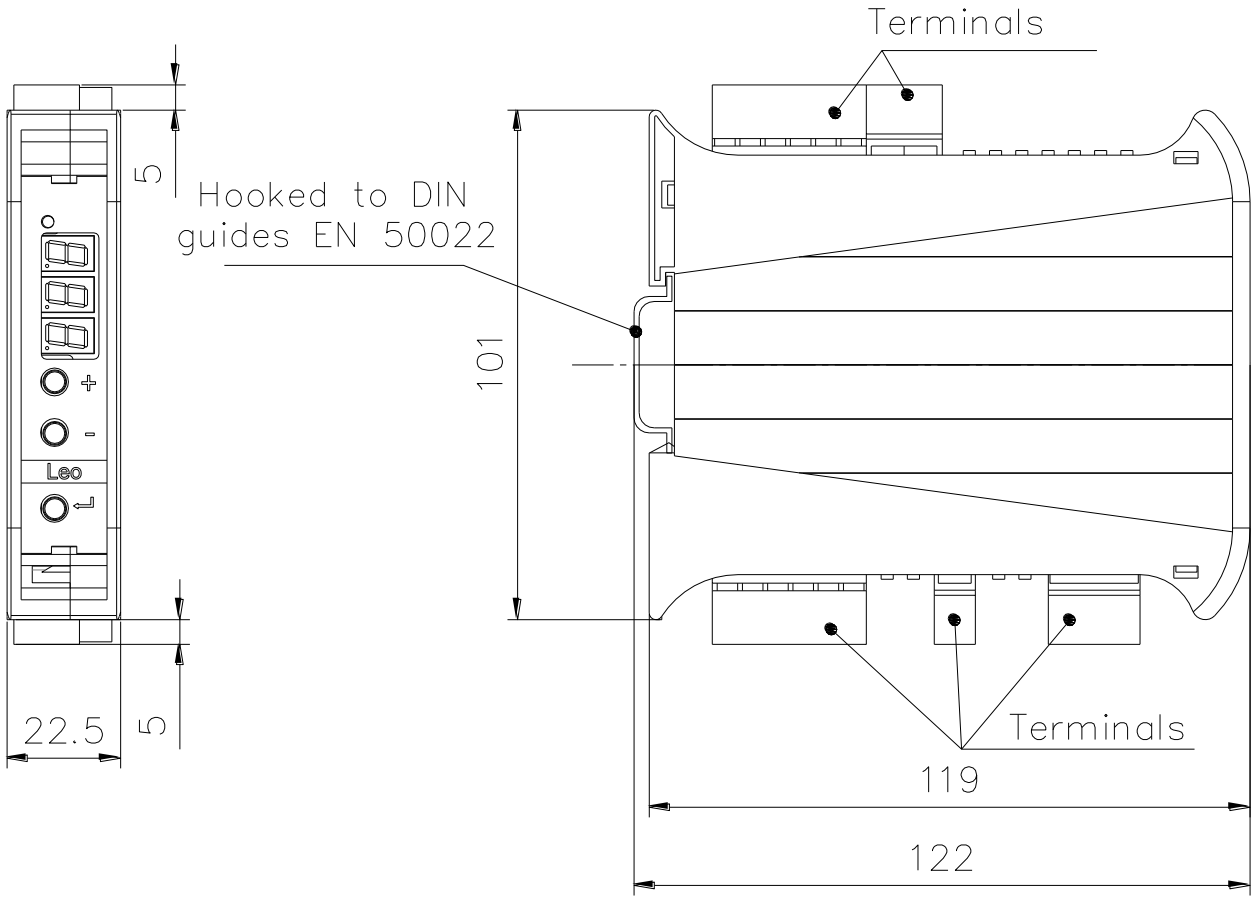
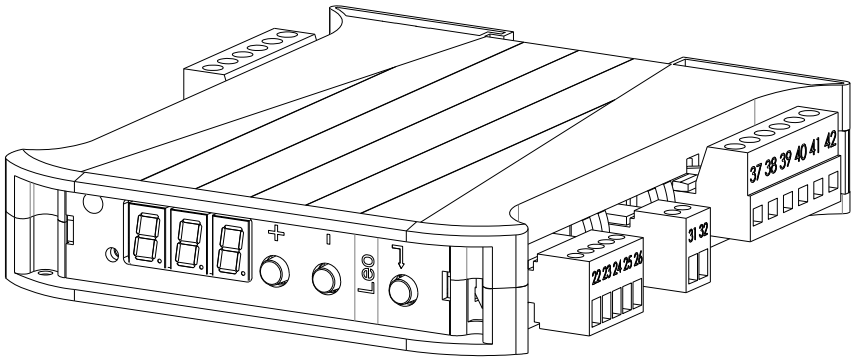
Mechanical dimensions





Technical specification

General

- Power supply 24Vdc
- Red 3 digit 7 segment display
- 3 keys for front panel programming
- Digital calibration of the I/O (it does not require troublesome regulations with trimmers)
- Brake/clutch demagnetising current set from the function (Anti - Residual)
- Two operating modes available:
  - **STANDARD:** simple current driver controlled by an external control device
  - **REGULATOR:** torque control with diameter sensor (open loop) or control of a dancer roller (closed loop) with Proportional - Derivative regulation
- Disconnectable screw terminal blocks
- Compact container for DIN guide mounting
- Operating temperature: 0÷50°C
- Protection rating: IP20

I/O interface

- 2 opto-isolated digital inputs for brake/clutch release and priority stop
- 10Vdc reference power supply for external potentiometers
- 2 analogue inputs configurable to interface with control devices and/or sensors (potentiometer, dancer roller, sonar, PLC, etc.)
- 1 output with PWM current regulation to drive directly an electromagnetic powder brake (or clutch)
- Dedicated terminals for shielded cable connections

Description and electrical specifications of the I/Os

➢ Analog input with automatic variable gain

The variable gain input enables the user to amplify and acquire signals that do not use the entire input range efficiently, while maintaining a good level of measurement resolution. This is essential when acquiring signals via potentiometers (even in the case of limited stroke lengths!) or in general in the case of outputs where the range is equal to or less than 0 – 5 Vdc To get the best out of this feature, perform the “zero” calibration with the lowest possible value at the input. **LEO** features two inputs with variable gain.

Selecting the correct input mode

- **U**: set this mode for the acquisition from potentiometer or from sonar, PLC and other devices with voltage output with range 0÷10 Vdc;
- **I**: set this mode for the acquisition from sonar, PLC and other devices with current loop output with range 4÷20 mA.

Mode	Description
U	Analogue mode standard 0÷10 Vdc
I	Analogue mode standard 0÷10 mA

Specifications

- Equipped with programmable **digital anti-aliasing filter** for limiting unwanted signal variations.

Input	Terminal number	Rin (Ω)	Imax (mA) (I mode)	Gain Steps	Default mode
AI5	13	147K (U mode) or 110 (I mode)	28	1-2-4-5-8	U
AI6	14				

➢ Reference 10Vdc (Terminal 15)

This is a stabilized 10 Vdc analogue output that can be used to power external potentiometers connected to your **LEO** device.

- Output resistance: ≈10Ω
- Maximum current rating: 10mA

➢ 0VA (Terminal 16) and 0VD (Terminal 26)

These inputs may be used for connecting reference voltages for the analogue (0VA) and digital (0VD) signals. It is important to note that, while we strongly recommend connecting the 0VA reference, even though it is not strictly necessary, the 0VD digital reference MUST be connected, otherwise the digital inputs will not work!

➢ -0V (Terminal 18) and +24Vdc (Terminal 19)

In order to function correctly, your **LEO** device must be connected to a 24 Vdc power supply; connect the supply to these terminals in order to power the device.

- Voltage range: 20 – 28 Vdc (including ripple)
- Max. current: 0.1A (logic section) + 1.2A (power section)
- Protection fuse : 3.15A (5x20mm CF)

➢ Input for cable shields (Terminals 20, 21, 41 e 42)

The **LEO** device includes four terminals that can be used for all the signal and power cable shield connections. Connecting the cable shields to these terminals reduces electro-magnetic interference to a minimum. Connect the shields together using these dedicated terminals and connect the two pairs of terminals to the installation earth system or the 0V reference signal.

➢ Opto-isolated digital input

The pair of opto-isolated digital inputs fitted, allow the **LEO** device to receive simple commands from a PLC or operator panel to change its state based on the machinery state. The inputs are activated by closing a 24 Vdc voltage free contact by connecting the 0VD common terminal to the reference 0V. The controls associated to the activation of the inputs are indicated in the device's electrical wiring diagram and are described in detail in the *Remote control of the states* section (page 16).
The only mode that can be selected for these inputs is the standard digital mode "**dIg**".

Specifications

Input	Terminal number	Rin (KΩ)	fmax (Hz) mod. dIg	Default mode
DI3	24	4,7	50	dIg
DI4	25			

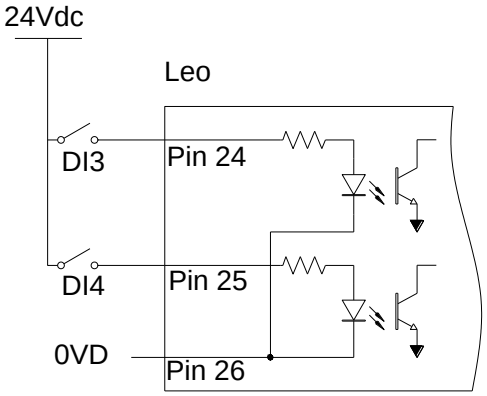


Figure 1

➢ **PWM current regulator output for electro-magnetic brakes (or clutches)**

This output may be connected directly to electro-magnetic brakes or clutches in order to modulate the current in the magnetising coil, thereby generating an adjustable and stable torque when the operating temperature of the brake changes.

Specifications

- Protection from short-circuits and over-currents
- Protection from over-heating
- Real-time current output monitoring
- Anti-residual brake demagnetising function

Output	Terminal number	ILmax (A)	Range I (A)	Max. resolution (A)	Ireg_freq (Hz)
AO3	37-38	1,2	-0,099 ÷ 1	0,00025	2200

Electro-magnetic compatibility (EC)

The **LEO** device conforms to the requirements of the generic EMC directives EN6100-6-2 (2005) and EN61000-6-3 (2007)

The following harmonised standards were used for the tests: :

- CISPR 16-2-3
- CISPR 16-2-1 par. 7.4.1 e CISPR 16-1-2 par. 4.3
- EN61000-4-2 : 1995 + A1 :1998 + A2 : 2001
- EN61000-4-3 : 2007
- EN61000-4-4 : 2004
- EN61000-4-5 : 2006
- EN61000-4-6 : 2009